Cornell, B. and A. Shapiro, 1989, "The Mispricing of U.S. Treasury Bonds: A Case Study," *The Review of Financial Studies*, 2 (No. 3): 297–310.

Cornell, B., 1989, "The Impact of Data Errors on Measurement of the Foreign Exchange Risk Premium," *Journal of International Money and Finance*, 8: 147–157.

Cornell, B. and W. Landsman, 1989, "Security Price Response to Quarterly Earnings Announcements and Analyst Forecast Revisions," *The Accounting Review*, 64 (October): 680–692.

Cornell, B. and A. Shapiro, 1988, "Financing Corporate Growth," *Journal of Applied Corporate Finance, 1* (Summer): 6–22.

Cornell, B. and K. Engelmann, 1988, "Measuring the Cost of Corporate Litigation: Five Case Studies," *Journal of Legal Studies*, 17 (June): 135–162.

Cornell, B. and A. Shapiro, 1987, "Corporate Stakeholders and Corporate Finance," *Financial Management*, 16 (Spring): 5–14.

Cornell, B., A. Shapiro and W. Landsman, 1987, "The Impact on Bank Stock Prices of Regulatory Responses to the International Debt Crisis," *Journal of Banking and Finance*, 3: 161–178.

Cornell, B., 1987, "Pricing Interest Rate Swaps: Theory and Empirical Evidence," Proceeding of Conference on Swaps and Hedges, Saloman Brothers Center, New York University.

Cornell, B., 1987, "Forecasting the Eleventh District Cost of Funds," *Housing Finance Review*, 6 (Summer): 123–135.

Cornell, B. and K.R. French, 1986, "Commodity Own Rates, Real Interest Rates, and Money Supply Announcements," *Journal of Monetary Economics*, 18 (July): 3–20.

Cornell, B. and A. Shapiro, 1986, "The Reaction of Bank Stock Prices to the International Debt Crisis," *Journal of Banking and Finance*, 10: 55–73.

Cornell, B., 1985, "Inflation Measurement, Inflation Risk, and the Pricing of Treasury Bills," *Journal of Financial Research*, 9 (Fall): 193–202.

Cornell, B. and A. Shapiro, 1985, "Interest Rates and Exchange Rates: Some New Empirical Evidence," *Journal of International Money and Finance*, 4: 431–442.

Cornell, B., 1985, "The Weekly Pattern in Stock Returns: Cash versus Futures," *Journal of Finance*, 40 (June): 583–588.

Cornell, B., 1985, "The Income Approach to Valuation," *Proceedings of the Wichita State University Conference on the Appraisal of Railroads and Public Utilities.*

Cornell, B. and O. Sand, 1985, "The Value of Rate Base Options in the Eurocredit Market," *Journal of Bank Research*, 16 (Spring): 22–28.

Cornell, B., 1983, "The Money Supply Announcements Puzzle: Review and Interpretation," *American Economic Review*, 73 (September): 644–658.

Cornell, B., 1985, "The Money Supply Announcements Puzzle: Reply," *American Economic Review*, 75 (June): 565–566.

Cornell, B., and K.R. French, 1983, "Taxes and the Pricing of Stock Index Futures," *Journal of Finance*, 38 (June): 675–695. Reprinted in *Proceedings of the Seminar for the Analysis of Securities Prices*, University of Chicago Press, 1983.

Cornell, B., 1983, "Money Supply Announcements and Interest Rates: Another View," *Journal of Business*, 56 (January): 1–25. Reprinted in *Proceedings of the Seminar for the Analysis of Securities Prices*, University of Chicago Press, 1983.

Cornell, B., 1983, "Monetary Policy and the Daily Behavior of Interest Rates," *Journal of Business and Economics*, 35: 189–203

Cornell, B. and A. Shapiro, 1983, "Managing Exchange Risk," *Midland Corporate Financial Journal*, 1 (Fall): 16–31. Reprinted in *New Developments in International Finance*, J.M. Stern and D.H. Chew, eds., Basil Blackwell, New York, 1988.

Cornell, B. and K.R. French, 1983, "The Pricing of Stock Index Futures," *Journal of Futures Markets*, 3 (Fall): 1–14. Reprinted in *Readings in Futures Markets, Vol. V* and in *Selected Writings on Futures Markets: Explorations in Financial Futures*, both published by the Chicago Board of Trade, 1984.

Cornell, B., 1982, "Money Supply Announcements, Interest Rates, and Foreign Exchange," *Journal of International Money and Finance*, 1: 201–208.

Cornell, B. and M.R. Reinganum, 1981, "Forward versus Futures Prices: Evidence From the Foreign Exchange Markets," *Journal of Finance*, 36 (December): 1035–1046.

Cornell, B., 1981, "Taxation and the Pricing of Treasury Bill Futures," *Journal of Finance*, 36 (December): 1169–1176.

Cornell, B., 1981, "The Relationship Between Volume and Price Variability in Futures Markets," *Journal of Futures Markets*, 1 (Fall): 303–316.

Cornell, B., 1981, "Relative versus Absolute Price Changes: An Empirical Study," *Economic Inquiry*, 16 (April): 302–309.

Cornell, B., 1981, "The Consumption Based Asset Pricing Model: A Note on Potential Tests and Applications," *Journal of Financial Economics*, 9 (March): 103–110.

Cornell, B. and R. Roll, 1981, "Strategies for Pairwise Competitions in Markets and Organizations," *Bell Journal of Economics*, 12 (Spring): 201–216.

Cornell, B., 1981, "What is the Future for Floating Rate Bonds?", *Chase Financial Quarterly*, 1 (Fall): 27–38.

Cornell, B., 1980, "The Denomination of Foreign Trade Contracts Once Again," *Journal of Financial and Quantitative Analysis*, 15 (November): 933–945.

Cornell, B., 1980, "Inflation, Relative Price Changes and Exchange Risk," *Financial Management*, 9 (Spring): 30–35.

Cornell, B., 1979, "Asymmetric Information and Investment Performance Measurement," *Journal of Financial Economics*, 7 (December): 381–390.

Cornell, B. and D. Capozza, 1979, "Treasury Bill Pricing in the Spot and Futures Markets," *Review of Economics and Statistics*, 61 (November): 513–520. Reprinted in *Interest Rate Futures: Concepts and Issues*, Robert Dame, Inc. 1981.

Cornell, B. and D. Capozza, 1979, "A Variance Forecasting Test of the Option Pricing Model," *Financial Review*, 7: 381–390.

Cornell, B., 1979, "Relative Price Changes and Deviations from Purchasing Power Parity," *Journal of Banking and Finance*, 3: 263–279.

Cornell, B., 1979, "A Note on Capital Asset Pricing and the Theory of Indexed Bonds," *Southern Journal of Economics*, 45: 1239–1247.

Cornell, B., 1979, "Do Money Supply Announcements Affect Short-term Interest Rates?", *Journal of Money, Credit and Banking*, 11 (February): 80–86.

Cornell, B., 1978, "Risk, Currency Substitution and the Exchange Rate," *Proceedings of the Fall 1978 Conference*, Federal Reserve Bank of San Francisco.

Cornell, B., 1978, "Determinants of the Bid-Ask Spread on Forward Foreign Exchange Contracts Under Floating Exchange Rates," *Journal of International Business Studies*, 9 (Fall): 33–41.

Cornell, B., 1978, "Using the Option Pricing Model to Measure the Uncertainty Producing Effect of Major Announcements," *Financial Management*, 7 (Spring): 54–59.

Cornell, B., 1978, "Price as a Signal of Quality: Some Additional Experimental Results," *Economic Inquiry*, 16 (April): 302–309.

Cornell, B. and J.K. Dietrich, 1978, "Mean Absolute Deviation versus Least-Square Regression Estimation of Beta Coefficients," *Journal of Financial and Quantitative Analysis*, 13 (March): 123–131.

Cornell, B., 1978, "Monetary Policy, Inflation Forecasting and the Term Structure of Interest" Rates, *Journal of Finance*, 33 (March): 117–127.

Cornell, B. and J.K. Dietrich, 1978, "The Efficiency of the Market for Foreign Exchange Under Floating Exchange Rates," *Review of Economics and Statistics*, 60 (February): 111–120.

Cornell, B., 1978, "Option Pricing in Bear and Bull Markets," *Journal of Portfolio Management*, 4 (Summer): 30–32.

Cornell, B., 1977, "Spot Rates, Forward Rates, and Exchange Market Efficiency," *Journal of Financial Economics*, 5 (August): 55–65. Reprinted in *Frontiers in International Financial Management*, Ed. D.R. Lessard, John Wiley, 1979, and in *International Finance: Concepts and Issues*, Eds., R.W. Kalb and G.D Gay, Robert F. Dame, 1982.

Cornell, B., 1977, "Measuring the Informational Content of Consumer Price Announcements," *Nebraska Journal of Economics and Business*, 16 (Summer): 57–64.

Cornell, B., 1977, "Which Inflation Rate Affects Interest Rates?", *Business Economics*, 12 (May): 22–25. Reprinted in *Certified Financial Analysts Digest*, 1977.

Cornell, B., 1977, "Are Deep Discount Convertibles Underpriced?", *Journal of Portfolio Management*, 3 (Spring): 55–57.

Cornell, B., 1977, "Using the Goldsmith-Nagan Survey to Estimate the Liquidity Premium," *Journal of Economics and Business*, 2 (February): 148–151.

Cornell, B., 1976, "Managing Money in a Competitive Securities Market," *Arizona Review*, 25 (September): 1–5.

Cornell, B., 1976, "Asset Pricing Under Uncertain Inflation: A Note on the Work of Long and Roll," *Intermountain Economic Review*, 7 (Spring): 85–91.

Cornell, B., 1976, "The Arizona Retirement System 1956–1975: An Investment Analysis," 25 (March): 1–5.

Book Reviews and Discussion Comments

Cornell, B., 1988, "Statistical Analysis of Price and Basis Behavior: October 12–26, 1987," in *The Stock Market: Bubbles, Volatility, and Chaos*, E.D. Dwyer and R.A. Hafer, eds., Kluwer Academic Publishers, 1990.

Cornell, B., 1985, Review of *Futures Markets*, edited by Manfred F. Streit, *Journal of Monetary Economics*, 16 (July): 133–135.

Cornell, B., 1985, Review of *Exchange Rates and International Macroeconomics*, edited by Jacob A. Frenkel, *Journal of International Money and Finance*, 4: 212–214.

Cornell, B., 1983, Review of *Exchange Rate Policy*, by Ray A. Batchelor and Geoffrey Wood, *Journal of Economic Literature*, 21: 1027–1029.

Working Papers

Cornell, B., 1996, *Social Decoding and Ethnic Discrimination*, book length manuscript.

Cornell, B. and S.C. Cheng, 1995, "Using the DCF Method to Estimate the Cross-Sectional Variation of Expected Returns."

Cornell, B., 1984, "Testing the Tax Timing Option Theory: A New Approach."

Cornell, B. and J.K. Dietrich, 1979, "Determinants of Corporate Capital Structure: An Empirical Analysis."

AWARDS AND HONORS

Cited as one of the ten most prolific research authors in the field of finance, in "Most Frequent Contributors to the Finance Literature," by Jean Louis Heck and Phillip L. Cooley, *Financial Management*, Autumn, 1980.

Financial Management Association Prize for Applied Research: 1987

Institute for Quantitative Research in Finance, Research Grant: 1984

Center for the Study of Futures Markets, Research Grant: 1983

Center for the Study of Futures Markets, Research Grant: 1981

Chicago Mercantile Exchange, Research Grant: 1979

Phi Beta Kappa, Stanford University, 1970

Graduated with distinction, Stanford University, 1970

JOHN I. HIRSHLEIFER – Principal

EDUCATION AND PROFESSIONAL CERTIFICATION

M.B.A.	Concentration in Finance, University of California, Los Angeles, 1980
B.A.	Political Science, University of California, Los Angeles, *magna cum laude*, 1976
	Certified Public Accountant, California

LICENSES HELD

Registered securities representative (Series 7 license)

General securities principal (Series 24 license)

Financial operations principal (Series 27 license)

Licensed real estate broker in the State of California

PROFESSIONAL MEMBERSHIPS

California Society of Certified Public Accountants

PUBLICATIONS

"Estimating the Cost of Equity Capital." With Bradford Cornell and Elizabeth P. James. *Contemporary Finance Digest*, FMA International/CIBC Wood Gundy, Autumn 1997, Vol. 1, No. 1, p. 5.

PROFESSIONAL POSITIONS

1999–present	*Principal*, Charles River Associates Incorporated.
1990–1999	*Vice President, Director of Research*, FinEcon. Testified before state public utility commissions regarding the cost of capital applicable to the provision of telephone network elements and universal service by local exchange companies. Testified at deposition and trial regarding economic and financial issues related to business damages, valuation, cost of capital, and securities matters.

Managed consulting and valuation engagements dealing with a broad variety of issues including damages estimation in business disputes; the development of cost of capital estimation methodologies; valuation of intangible assets; estimation of minority and liquidity discounts; insider trading; fraud-on-the-market damages and class certification issues; the impact of information disclosures on stock price movements; the economic substance of stock and futures trading strategies; analyses of complex derivative securities; analyses of mergers, acquisitions, and restructurings; analyses of high-yield bonds; the risk characteristics of fixed income portfolios; analysis of viability of asbestos liability compensation funds; and antitrust matters.

Representative industry experience includes securities and mutual funds, telecommunications, healthcare, computer peripherals, entertainment, banking, food service, real estate, oil and gas, biotechnology, consumer electronics, and insurance.

1985–1990 *Director of Due Diligence*, Transamerica Financial Resources, Inc., Los Angeles, CA. As financial principal, oversaw all financial regulatory filings and coordinated financial aspects of periodic NASD and SEC audits. Supervised all securities due diligence and proprietary partnership origination activities of Transamerica broker-dealer affiliate. Coordinated and analyzed the work of due diligence staff, outside securities and tax attorneys, accountants, private detectives, and other third-party experts in the course of due diligence investigation of securities considered for sale by the broker-dealer.

Reviewed investment opportunities for proprietary syndication or direct brokerage, including potential real estate, cable television, equipment leasing, and film financing investments; inspected property sites; prepared financial analyses and projections; negotiated terms of acquisitions, partnership participations, and loans; wrote, reviewed, and edited offering documents and contracts.

Consulted for other Transamerica companies regarding acquisitions, including venture capital opportunities, and qualifications and performance records of asset managers. Established Registered Investment Adviser affiliate company. Supervised administration of previously syndicated proprietary partnerships including oversight of property management performance; investor reporting; partnership legal, treasury, accounting, tax, and financial reporting functions.

Coordinated litigation matters for proprietary limited partnerships; directed litigation strategies in conjunction with cost-benefit analyses of alternative actions; testified at deposition and trial. Licensed real estate affiliate to promote Asian investment in Transamerica-brokered real estate and securities; made presentations to top management of major Japanese and Taiwanese corporations regarding real estate investment in the United States.

Elected Treasurer & Financial Principal of Transamerica Financial Resources in 1988.

Elected Second Vice President of Transamerica Financial Resources in December 1985.

1980–1984 *Senior Tax Consultant*, Price Waterhouse, Century City, CA. Responsible for corporate, partnership, trust, and individual client matters including tax research and planning, review and supervision of tax compliance and projections, and preparation of financial cash flow analyses. Supervised and performed audits of corporate and partnership clients. Prepared projections for privately syndicated limited partnerships. Supervised writing of tax opinion letters and co-authored comments to the U.S. Treasury Department regarding proposed income tax regulations.

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Application by Verizon New England Inc., Bell Atlantic Communications, Inc. (d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a Verizon Enterprise Solutions), and Verizon Global Networks Inc., for Authorization to Provide In-Region, InterLATA Services in Massachusetts	)	CC Docket No. 00-176

DECLARATION OF MICHAEL R. BARANOWSKI
ON BEHALF OF AT&T CORP.

Based on my personal knowledge and on information learned in the course of my duties, I, Michael R. Baranowski, declare as follows:

I. INTRODUCTION

My name is Michael R. Baranowski. I am Executive Vice President of FTI/Klick, Kent & Allen, Inc., a subsidiary of FTI Consulting, Inc. ("FTI/KKA"). FTI/KKA is an economic and financial consulting firm with offices at 66 Canal Center Plaza, Suite 670, Alexandria VA, 22314. In that position, I conduct economic and cost analysis for a variety of clients. Since 1996, I have been directly involved in AT&T's efforts to enter the local telecommunications market. In that regard, I am intimately familiar with the TELRIC cost models submitted by Verizon and its predecessor companies NYNEX and

Bell Atlantic in a number of states. I am submitting this declaration at the request of AT&T.

The purpose of my declaration is to demonstrate that Verizon's Massachusetts unbundled loop rates exceed properly developed TELRIC rates and are thus not cost based. My conclusion is based on my review of the limited hard copy materials provided by Verizon Massachusetts ("VZ-MA") in support of its compliance runs in the 1996-97 UNE proceeding before the Massachusetts Department of Public Utilities, D.P.U. 96/73-74 *et al.* My review has been limited to the hard copy cost study materials because VZ-MA has failed to provide an electronic version of the cost study materials to Worldcom or AT&T in this proceeding. Without access to an electronic version of the VZ-MA cost studies, I am unable to reliably restate the cost studies to correct the errors I have identified.

VZ-MA's predecessor company NYNEX, in the first round of the New York UNE proceeding, submitted an electronic version of a loop cost study with a format very similar to the hard copy loop study documentation provided for Massachusetts. It would be possible to use the electronic version of the cost model produced by NYNEX in the New York proceeding to first replicate the VZ-MA loop cost results by substituting Massachusetts specific inputs for the New York specific inputs initially provided by NYNEX.

It would then be possible to correct erroneous VZ-MA inputs and restate the Massachusetts loop costs to make them more compliant with TELRIC costing principles.

I am bound by a proprietary agreement in the New York proceeding and am thus unable to use the New York spreadsheet in this proceeding to correct and restate the VZ-

MA loop costs. Verizon thus far has not granted the request of AT&T and Worldcom that I be allowed to use the New York materials in this proceeding.

If Verizon grants the necessary permission for me to use the New York materials in this proceeding, it would take approximately three business days to modify the New York materials to replicate the VZ-MA loop results and to then correct the inputs and produce restated Massachusetts loop costs.

In addition to the lack of an electronic version of the spreadsheet underlying VZ-MA's UNE loop rates, the hard copy cost study documentation is incomplete. Specifically, information relating to the development of distribution investment is missing from the hard copy materials. Thus, it is nearly impossible to understand completely VZ-MA's loop cost calculations using only the hard copy materials provided by VZ-MA.

Based on my experience with ILEC cost models and the relative impact of changes to specific cost model input assumptions, I believe that the loop costs presented by VZ-MA exceed properly developed TELRIC costs. To comply with TELRIC costing principles, the VZ-MA loop costs would have to be reduced by at least 30 percent. I have identified seven distinct reasons why the VZ-MA TELRIC costs are overstated. These are as follows:

1. The weighted average cost of capital used in the VZ-MA loop cost studies (12.16%) exceeds a reasonable current measure of the forward-looking cost of capital (9.47%).
2. The VZ-MA cost study assumes copper distribution fill levels ranging from 40 to 65 percent. The correct forward-looking copper distribution fill should be at the high end of the VZ-MA range, which is 65%.
3. The cost study fails to consider that drop lengths vary by density zone and instead assumes a uniform 125 foot drop length.

4. Digital Loop Carrier line card fill factors used in the cost study are 80 percent instead of the more appropriate forward-looking fill of 90 percent.
5. The study uses an input for digital loop carrier common equipment fill that conflicts with the specific utilization levels used for specific types of digital loop carrier equipment.
6. The study inappropriately uses a 60 percent fill factor for fiber feeder.
7. The cost provides for excessive spare conduit capacity.

In addition to my review of the VZ-MA loop costs, I have reviewed the declaration of Worldcom witness Mark T. Bryant attached to Worldcom's initial comments in this proceeding, and the analysis of the VZ-MA switching cost described in that declaration. I agree with Mr. Bryant's criticisms and with the methodology he used to restate VZ-MA switching costs to be more compliant with TELRIC principles. I believe, however, that the appropriate forward-looking cost of capital should be 9.47% instead of the 11.25% figure used by Mr. Bryant.

Substitution of a forward-looking 9.47 percent cost of capital in place of the 11.25 percent cost of capital used by Mr. Bryant would reduce his restated switching costs by approximately 8.4 percent.

II. VERIZON'S UNBUNDLED LOOP RATES ARE BASED ON UNJUSTIFIABLE AND UNREASONABLE ASSUMPTIONS

A. Cost of Capital

The VZ-MA cost study applies a 12.16 percent weighted average cost of capital to compute the return on its forward-looking investment. As Mr. Hirshleifer explains in his accompanying declaration, the cost of capital used by VZ-MA is not forward-looking and substantially overstates costs.

B. Distribution Fill

The study assumes copper distribution fill levels of 40 percent in the metro, urban and suburban density zones and 65 percent in the rural density zone. This pattern is the opposite of the pattern adopted in the FCC's forward-looking Synthesis Model. Specifically, the FCC states "We affirm our tentative conclusion that fill factors for copper cable should be lower in the lowest density zones. Significantly, those commenters addressing this issue agree that lower density zones should utilize lower copper cable fill factor inputs." (FCC Tenth Report and Order, CC Docket No. 96-45, November 2, 1999, paragraph 193).

A more appropriate, albeit conservative, approach is to use the high end of the VZ-MA range as the copper distribution fill for all density zones.

Such an adjustment is conservative in two respects. First, the copper distribution fill factors used in the Synthesis Model for the highest density zones exceed the 65% maximum copper distribution fill factor used in my restatement. Second, the 65% average fill for copper distribution is generally consistent with the VZ-MA 60% assumption for drop fills across all density zones.

C. Drop Length

The VZ-MA cost study assumes a 125 foot distribution drop length in all density zones. This assumption fails to account for the logical fact that, as population densities increase, spacing between customers decreases.

A more appropriate assumption is to reflect shorter average drop distances in higher density areas. A representative mix assumes 50-foot drops in urban areas, 100-foot drops in suburban areas and 150-foot drops in rural areas.

These assumptions produce an average drop length of 84 feet, which is higher than the 73 foot average drop length nationwide as reported in Bellcore's BOC Notes on the Networks, 1997.

D. Digital Loop Carrier Channel Card Fill

The VZ-MA loop cost study assumes a fill level for digital loop carrier channel cards of 80%. Because of the ease with which digital loop carrier line card capacity can be increased, the more appropriate forward-looking channel card fill for use in the VZ-MA cost study is 90 percent.

E. Digital Loop Carrier Common Equipment Fill

The VZ-MA cost study assumes digital loop carrier channel bank utilization of 60 percent in the metro and urban density zones, 70 percent in the suburban density zone and 65 percent in the rural density zone. The utilization levels are lower than the actual utilization assumed within the cost study for specific types of digital loop carrier equipment in three of the four Massachusetts density zones. For example, the VZ-MA study assumes all customers in the urban density zone would be served with a 6,048 line capacity remote terminal and that, on average, each remote terminal will have 4,317 working lines. This mix yields an average utilization of 71.4 percent.[1] Yet, VZ-MA assumes a 60 percent common equipment utilization for this density zone.

The VZ-MA cost study should use the actual digital loop carrier equipment utilization consistently throughout its study. Table 1 sets forth the actual utilization levels by density zone compared with the assumptions used by VZ-MA.

[1] 4,317 / 6,048 = 71.4%.

Table 1

Summary of Actual Digital Loop Carrier

Utilization Used in the VZ-MA Cost Study

Density Zone	VZ-MA Assumed Utilization	Actual Study Input
Metro	60%	69.3%
Urban	60%	71.4%
Suburban	70%	68.4%
Rural	65%	68.5%

F. Fiber Feeder Fill

The VZ-MA cost study assumes a fiber utilization level of 60 percent. Because fiber throughput capacity is a function of the capacity of the digital loop carrier equipment used to pass the signal through the fiber strand, the utilization level for fiber feeder is properly 100 percent. This is confirmed by the FCC's conclusion, in adopting the Synthesis Model: "we reaffirm our tentative conclusion that the input value for fiber fill in the federal mechanism should be 100 percent. The majority of commenters addressing this specific issue agree with our tentative conclusion." (FCC Tenth Report and Order, CC Docket No. 96-45, November 2, 1999, paragraph 208)

While it is plausible that VZ-MA would argue that the low fill factor assumption for fiber feeder is needed to account for breakage, such an argument would be misplaced in the context of the VAM cost study. This is because some level of breakage is accounted for in the study's typical digital loop carrier configuration, which assumes a minimum of 12 and a maximum of 24 fiber strands for remote terminal sites. Stated differently, the study assumes each remote terminal is provisioned with a minimum of 12

fiber strands, even when only four strand may actually be required. Thus, VZ-MA's typical provisioning assumption already accounts for breakage.

G. Conduit Spare Capacity

The VZ-MA cost study provides for an excessive amount of conduit spare capacity in both the feeder and distribution plant. This is accomplished primarily by assuming a 50 percent conduit utilization factor for both feeder and distribution.

Use of a 50 percent conduit utilization factor in the feeder plant, combined with VZ-MA's assumption of 3 innerducts per duct and two fiber strands per duct, yields an average conduit of 33.3 percent.[2] In other words, the VZ-MA study assumes 4 spare innerducts for every two innerducts used. This is clearly excessive.

On the distribution side, the VZ-MA cost study does not address innerducts, but rather assumes a 50% conduit utilization. In other words, VZ-MA assumes one complete spare duct for each duct occupied with copper distribution. This is excessive for two reasons. First, the copper distribution cable, through the application of a copper distribution fill factor, provides a sufficient amount of spare capacity to accommodate anticipated growth. Second, in the event that the projected growth levels are exceeded and a second conduit would need to be constructed to accommodate the additional copper cable necessary to serve the increased demand, the cost of the added conduit should be borne by the new customers served.

For these reasons the application of a 50 percent conduit utilization factor should be eliminated.

[2] 2 fiber strands / 3 innerducts per duct = 66.7% utilization x 50% utilization = 33.3% actual utilization.

H. Other

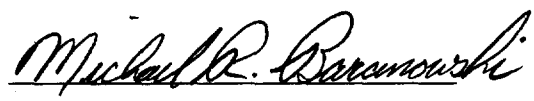
In addition to the specific input and methodological problems that I have been able to identify, there are a number of areas where the VZ-MA loop costing approach appears to deviate from the FCC recommended methodology.

First, I cannot find any evidence in the hard copy VZ-MA study documentation of structure sharing between the loop feeder and distribution. A forward-looking cost model should take advantages of all available economies of scale and allow sharing of structure between feeder and distribution.

Second, the unit costs for distribution conduit appear to include additional costs for manholes. The FCC's Synthesis Model recognizes that manholes are not typically needed in the distribution plant. Thus, inclusion of unneeded manhole costs in the distribution plant overstates loop costs.

VERIFICATION

I, Michael R. Baranowski, declare under penalty of perjury that the foregoing is true and correct. Executed on November 1, 2000.



Michael R. Baranowski

CERTIFICATE OF SERVICE

I hereby certify that on this 2nd of November, 2000, I caused true and correct copies of the forgoing Reply Comments of AT&T Corp. to be served on all parties by mailing, postage prepaid to their addresses listed on the attached service list.

Dated: November 2, 2000
Washington, D.C.

Peter M. Andros

Service List

Cleo A. Manuel
Keep America Connected!
P.O. Box 27911
Washington, D.C. 20005

Paul G. Alfonso
Massachusetts Department of
Telecommunications and Energy
One South Station, 2nd Floor
Boston, Massachusetts 02110

Albert Leung
Chinatown Business Association
6 Tyler Street #2/F
Boston Massachusetts 02111

Dale Lestina
O.C.R.E.
1201 16th Street N.W., #510
Washington, D.C. 20036

Donald J. Russell
Telecommunications Task Force
Antitrust Division
U.S. Department of Justice
1401 H. Street, NW Suite 800
Washington, D.C. 20530

Michael Schunk
Swidler Berlin Shereef Friedman, LLP
3000 K Street, N.W. Suite 300
Washington, D.C. 20007-5116

Paul C. Trade
Telecommunications Insight Group
38 Union Square
Somerville, MA 01243

Cameron F. Kerry
Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
One Financial Center
Boston, MA 02111

Mark D. Schneider
Jenner & Block
601 13th Street, N.W. Suite 200
Washington, D.C. 20005

Mary Jean Fell
Blumenfeld & Cohen
Suite 300
1625 Massachusetts Ave., N.W.
Washington, D.C. 20036

Rodney L. Joyce
Shook, Hardy & Bacon L.L.P.
600 14th Street, N.W., Suite 800
Washington, D.C. 20005-2004

Harisha J. Bastiampillai
Swidler Berlin Shereef Friedman, LLP
3000 K Street, N.W. Suite 300
Washington, D.C. 20007-5116

Hilary O. Shelton
NAACP
1025 Vermont Avenue, N.W. Suite 1120
Washington, D.C. 20005

William L. Fishman
Swidler Berlin Shereef Friedman, LLP
3000 K Street, N.W. Suite 300
Washington, D.C. 20007-5116

Thomas M. Menino
Boston City Hall
One City Hall Plaza
Boston, Massachusetts 02201

Jonathan E. Canis
Kelley Drye & Warren LLP
1200 Nineteenth Street, N.W. Fifth Floor
Washington, D.C. 20036

Michael D'Angelo, Esq.
XO Massachusetts, Inc.
45 Eisenhower Drive
Paramus, New Jersey 07652

Robert J. Aamoth
Kelley Drye & Warren LLP
1200 19th Street, N.W.
Washington, D.C. 20036

Pace A. Duckenfeld
Alliance for Public Terchnology
919 18th Street, N.W. Suite 900
Washington, D.C. 20036

Charles C. Hunter
Hunter Communications Law Group
1620 I Street, N.W. Suite 700
Washington, D.C. 20006

Phillip L. Verveer
Three Lafayette Centre
1155 21st Street, N.W.
Washington, D.C. 20036

Jason D. Oxman
Covad Communications Company
600 14th Street, N.W. Suite 750
Washington, D.C. 20005

Karlen J. Reed
Assistant Attorney General
Regulated Industries Division
200 Portland Street, 4th Floor
Boston, MA 02114

Bruce Kushnick
New Networks Institute
826 Broadway, Suite 900
New York, New York 1003

Steve Mongeon
Florence Paint & Decorating Center, Inc.
4 Depot Street
Florence, MA 01060

J. William Ward
Regional Employment Board of Hampden
1441 Main Street, First Floor
Springfield, MA 01103

H. Michael Schaefer
Stik-II Productions
41 O'Neill Street
Easthampton, Massahusets 01027-1103

Joseph P. Norton
Board of Selectmen
600 Chief Justice Cushing Highway
Scituate, Massachusetts 02066

Mark L. Love
Chamber of Commerce
33 Waldo Street
Worcester, Massachusetts 01608-1581

Gary L. Saunders
Saunders Hotel Group
18 Newbury Street
Boston, Massachusetts 02116-3201

Thomas J. Guerino
Massachusetts Rural Development Council
406 Goodell Building
University of Massachusetts
Amherst, MA 01003

Jett E. Stowell
The October Company, Inc.
51 Ferry Street
Box 71
Easthampton, Massahusetts 01027-0071

Vinny deMacedo
1st Plymouth District
73 Mountain Hill Road
Plymouth, Massachusetts 02360

Mathew H. Trask
Communications
536 MacArthur Boulevard
Bourne, Massachusetts 02532

Gumersindo Gomez
Springfield Bilingual Veteran's Outreach Center
P.O. Box 70185
233 Franklin Street
Springfield, Massachusetts 01107-0185

James E. Sullivan
One JFK Memorial Drive
Braintree, Massachusetts 02184

Mildred R. Garcia
National Hispanic Council on Aging
2713 Ontario Road, N.W.
Washington, D.C. 20009

Deborah Kaplan
World Institute on Disability
510 16th Street, Suite 100
Oakland, California 94612

ITS
445 12th Street, S.W., Room CY-314
Washington, D.C. 20554

Janice Myles
Common Carrier Bureau
445 12th Street, S.W., Room 5-B145
Washington, D.C. 20554

Edward J. Fondakowski
Chemetal
39 O'Neill Street
Easthampton, Massachusetts 01027-1103

Anne Werner
United Seniors Health Cooperative
409 Third Street, S.W. Suite 200
Washington, D.C. 20024

James P. Firman
National Council on Aging
409 Third Street, S.W. Suite 200
Washington, D.C. 20024

Magalie Roman Salas
445 12th Street, S.W., CY-B402
Washington, D.C. 20554

Bruce P. Beausejour
Verizon New England Inc.
185 Franklin Street
Room 143
Boston, MA 02110